

## Abstracts

A5

represented by 15,332 survey participants. Participants were classified according to CVD risk as diseased (history of coronary heart disease, angina, and/or myocardial infarction), at-risk (history of hyperlipidemia, hypertension, and/or diabetes mellitus), or low-risk (no history of any conditions). They were also classified according to the reported use of single-ingredient DSs including niacin, coenzyme Q10, fish oil, garlic, vitamin C, and vitamin E during the month prior to survey. Tests of moderation and confounding by age were performed. **RESULTS:** The prevalence of use of any of the six DSs increased with age. Odds ratios for any DS use for the at-risk and diseased groups, relative to the low-risk group, were 1.91 (95% CI: 1.67–2.17) and 2.25 (95% CI: 1.88–2.69), respectively. With adjustment for age, these became 1.32 (95% CI: 1.15–1.52) and 1.20 (95% CI: 0.99–1.44), respectively. There was no evidence of moderation ( $p = 0.123$ ), though confounding was present ( $p < 0.001$ ). **CONCLUSIONS:** There is a potential for residual confounding by age in studies of CVD risk and DS use. After adequately controlling for age in this study, the relationship between CVD risk and DS use was greatly attenuated. The findings indicated different patterns of responses to cardiovascular disease risk between younger adults and older ones in terms of DS consumption. Awareness of the confounding effect of age in the association of CVD risk and DS use should be noted in clinical practice and health promotion.

## PODIUM SESSION II: COST-EFFECTIVENESS STUDIES

CEI

#### COST-EFFECTIVENESS OF SWITCHING PATIENTS WITH TYPE 2 DIABETES FROM INSULIN GLARGINE TO INSULIN DETEMIR IN A CHINESE SETTING: A HEALTH ECONOMIC MODEL BASED ON THE PREDICTIVE STUDY

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**OBJECTIVES:** To evaluate the long-term cost-effectiveness of switching from insulin Glargine (IGla) to Insulin Detemir (IDet) in type 2 diabetes patients in the setting of Chinese tier 3 hospitals. **METHODS:** A published and validated computer simulation model of diabetes (the CORE Diabetes Model) was used to make the long-term (30 years) projection of health economic outcomes. Patient demographic information and clinical endpoints were derived from a subgroup analysis of the PREDICTIVE study. **PREDICTIVE** was a large, multi-centre, 6 months observational study assessing the safety and efficacy of IDet in everyday clinical practice. HbA1c was reduced of 0.59 % by switching from IGla to IDet. Baseline risk factors and racial characteristic data were obtained from Chinese cohort studies. The market retail prices of medications were calculated to estimate treatment costs. The diabetes management and complications costs were obtained from Chinese published data and adjusted to 2009 values using the Chinese Consumer Price Index. An annual discounting rate of 3% was used for both health and cost outcomes according to the recommendation of Chinese Pharmacoeconomics guideline. One-way sensitivities analysis was performed and illustrated that the results were robust. **RESULTS:** Conversion to IDet from IGla was projected to improve patient life expectancy by 0.09 year and 0.36 quality adjusted life years (QALYs). Treatment costs, and management costs were increased of 4,004 (84,047 vs 80,043), 243 (28,913 vs 28,670) Chinese Yuan (CNY) respectively. However, the costs of complications including CVD, renal, ulcer/amputation/neuropathy, eye and hypoglycaemia events were reduced by 4,931 CNY (89,628 vs 94,559), resulting in a total direct medical cost saving of 684 CNY when converting to IDet. **CONCLUSIONS:** Conversion to IDet from an IGla regimen improved life-expectancy and was a cost-saving treatment approach in a Chinese setting.

CE2

#### COST-EFFECTIVENESS OF SILDENAFIL IN THE MANAGEMENT OF PULMONARY ARTERIAL HYPERTENSION IN MEXICAN ADULT PATIENTS

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**OBJECTIVES:** Pulmonary arterial hypertension (PAH) is a clinical condition that causes decreased exercise tolerance and heart failure. The aim of this study was to assess the cost-effectiveness of different drugs to manage PAH in adult, functional class III, patients, who have failed previously to calcioantagonists, from the health care payer's perspective. **METHODS:** A five-state Markov model was performed to estimate one year costs and health consequences (1-month cycles). Effectiveness measures were quality-adjusted life years (QALY's) gained, as well as reduction in hospital length of stay (LOS) and discontinuation rate due to adverse events. Transition probabilities were obtained from a meta-analysis involving national and international published literature. Doses of comparators used in the assessment were sildenafil (60 mg/day); bosentan (250 mg/day); sitaxsentan (100 mg/day) and ambrisentan (5 mg/day, reference alternative). Resource use and costs were obtained from hospital records (n = 110) from the Social Security Mexican Institute. Costs include hospital stay, laboratory and respiratory function tests, imagenology, drugs and adverse events management. The model was validated according to international guidelines. Sensitivity analyses were performed employing bootstrapping techniques and acceptability curves were constructed. **RESULTS:** Per patient associated costs for sildenafil, bosentan, sitaxsentan and ambrisentan were [CI 95%]: US\$16,840 [US\$16,590–US\$17,176], US\$38,068 [US\$37,725–US\$38,497], US\$40,203 [US\$39,888–US\$40,647] and US\$26,146 [US\$25,898–US\$26,479], respectively. Sildenafil is associated to the highest gain in QALY's: 0.1 [–0.01–0.22], as well as to the main reduction in discontinuation rate: 89.25 [89.11%–89.4%] and reduction in LOS: 8.64 days [8.53 days–8.75 days], respectively. In consequence, sildenafil represents the most attractive therapy to manage PHA in terms of cost-effectiveness. **CONCLUSIONS:** In the Mexican institutional setting, sildenafil demonstrated to be a cost-saving therapy to manage PHA in adult, functional class III patients. These results should be taken into account by Mexican health professionals to generate efficient resource allocation strategies.

CE3

#### COST-EFFECTIVENESS OF POLYMYXIN B IMMOBILIZED FIBER COLUMN AND CONVENTIONAL MEDICAL THERAPY IN THE MANAGEMENT OF SEVERE ABDOMINAL SEPSIS IN ITALY

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**OBJECTIVES:** Severe abdominal sepsis and septic shock (SAS-SS) are common problems in intensive care units (ICU), and carry high mortality. This study assessed the cost-effectiveness of Polymyxin B immobilized fiber column (PMX) plus conventional therapy (CT) (PMX-CT) versus CT alone, for SAS-SS, in the perspective of the Italian NHS (hospital). **METHODS:** This study was a retrospective cost-effectiveness analysis (CEA) with clinical efficacy and consumption of resources collected alongside an RCT (Cruz et al. JAMA 2009). 64 SAS-SS patients were enrolled following emergency surgery for intra-abdominal infection in 10 tertiary care ICUs, from 12/2004 to 12/2007. Costs included: hospital days; ICU days; catecholamine treatment days; renal replacement therapy (RRT) days; mechanical ventilation treatment (MVT) days; use of PMX device. Resources were valued using published tariffs and market values. All-cause hospital mortality was extrapolated to survival (expected life-years per patient/arm): for each survivor average life expectancy (in years) by age and sex was retrieved from National Life Tables; for deceased patients, only the number of survival days as reported in the CRF, was retained. Per patient survival was then weighed using a predicted death rate based on individual Apache II scores, to account for disease severity. Univariate sensitivity analyses on costs and outcomes and 2000 Bootstrap simulations were run to test CEA's results. **RESULTS:** Based on the expected number of survival years (PMX-CT 8.24/patient, CT 4.69/patient), the mean difference in survival yielded an expected increase of 3.55LYG/patient for PMX-CT, at the additional cost of €13,411/patient with a mean ICER of €3,774/LYG and a median ICER of €2,776/LYG. Results of the base-case CEA were confirmed by all sensitivity analyses with ICER values always well below commonly accepted value thresholds. **CONCLUSIONS:** PMX-CT vs. CT is a cost-effective intervention for treatment of severe abdominal sepsis and septic shock and should be considered for use in the Italian NHS' hospital setting.

CE4

#### A PRELIMINARY COST-EFFECTIVENESS ANALYSIS OF TARGETED VACCINATION POLICIES TO MITIGATE THE IMPACT OF THE HINI PANDEMIC IN THE US

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**OBJECTIVES:** Under the circumstances of a severe pandemic and constrained research and manufacturing capacity, the need to appropriately deploy vaccination stockpiles becomes critical. The objective of this study was to provide insight into the most cost-effective vaccination strategy when under constrained circumstances. **METHODS:** A deterministic and compartmental SIR (Susceptible-Infected-Removed) cost-effectiveness model was developed from a US CDC perspective using Microsoft Excel. The model consists of 6 distinct age groups, integrated by a contact matrix. The infectivity of the pandemic was based on reported CDC estimates, with the model calibrated accordingly. A 75% vaccination efficacy was used, consistent with previous studies. Under the assumption of stockpiling 50 million doses of vaccine, vaccination strategies were assessed in terms of infections avoided during the estimated 17 month period of the pandemic. The scenarios included strategies targeted to specific age groups: individually targeted age groups, groups under 20, over 20, 20–59 and 0–12 and 60+ combined. Costs were limited to vaccine acquisition, with the total rate of vaccination per day estimated at 741,935. For the base case, we initiate the pandemic in May 2009 and began vaccination in October. Sensitivity analysis on the initiation of vaccination was also assessed. **RESULTS:** With no vaccination, a basic reproduction number of 1.3 and infectious period of 4.5 days yielded an attack rate of 27.7%. The cost-effectiveness of targeted vaccination ranged from \$4.87 (13–19 years) to \$67.05 (65+) per infection avoided. Under the criteria of exhausting vaccine supplies, the most cost-effective strategy was to target those under 20 years old (\$10.77 per infection avoided). Initiating vaccination earlier during a pandemic marginally improved cost-effectiveness, while delayed vaccination resulted in substantially reduced cost-effectiveness. **CONCLUSIONS:** Administering vaccinations to those aged under 20 years is the most cost-effective strategy. All vaccination policies initiated after the peak of the pandemic, were less cost-effective.